A Statistical Insight into Health & Education in Chennai Slums

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States "recognize the right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions."

-- Article 11(1), *International Covenant on Economic, Social and Cultural Rights*, UN General Assembly Resolution 2200A (XXI) of 16 December, 1966.

Economic 'growth' and 'development' have largely been synonymous terms to successive governments in India, thus, often used interchangeably by mandarins to refer to the overall macroeconomics of the country, often coming with the jargons of FDI, exchange reserves, stock market indices, export levels and a myriad other ways that qualify as reflective of the material wealth and well-being of the nation. However, uncertain that the correctness of this interchangeability is, theoretical economics does strike a distinction between the two.[1] It is perhaps in this distinction that the otherwise obscured reality of the lower economic strata of the country comes glaringly to the forefront. This paper is aimed at providing an analytical overview of health and education policies practiced by the Corporation of Chennai in slums.

The paper is divided into three parts. Part I will seek to deal with health care in slums, while Part II will deal with school education. Part III will present a consolidated picture of the two. While every attempt has been made here to use statistics that emanate only from reliable sources, and also to make them up-to-date, it is to be noted that with the fluctuation in slum conditions – often on a day-to-day basis – it becomes practically difficult to ensure their precision even as of this writing. Being an exercise at depicting a picture of how generally things stand, the purpose is sought to be served even whilst the risk of mild inaccuracy exists.

While what actually are slums is a question that does not have a universal answer for the reason of varied definitions, a slum in Chennai, for the purposes of this paper, is one so notified by the local government (the Corporation here).[2] This is so, for, while criteria for branding slums are quantitatively different depending upon the general economic condition of a country, certain ubiquities can be found, in the likes of lack of living space resulting in congestion, unhygienic conditions, lack of safe drinking water, narrow roads, bad lighting, lack of planning,

[1] On the one hand, traditionalists do not hamper on such a distinction while neo-classicalists point out inevitable differences in the context of growing economies that are unable to account for the lack of precipitation of gains in macroeconomics to the common man. This phenomenon has also been used to explain dualist developing economies, with vibrant cities on the one hand and stagnated villages on the other.

[2] This is the relevant part of the definition that the 2001 Census of India adopts and has in fact been the most relied definition in many developmental studies.

and water logging.[3] If these were to be the material defects, repercussions lie in the form of poor health often leading to slum epidemics, lack of education and job opportunities. At one point, where it becomes indistinguishable between cause-effect, the vicious circle poses problems for rehabilitation, with the search for where to start and end resulting in ambivalence. With ever-increasing demographic migration from rural to urban areas, the World Bank foresees the looming threat of slums across the globe, with all population growth in the next 30 years felt virtually only in cities, at a rate of more than 21 times to that of rural areas.

There are 155 slum divisions within the Chennai Municipal Corporation, with a whooping 25% of the city's total population being slum dwellers (2001 census).[4] The figures worked out to 1.08 million. Current estimates would mean that by the end of 2006, the slum population would have increased by another 35,000 persons at the least. Thus, without exaggeration, slum population in Chennai today would definitely be more than 1.11 million.[5] Mere lack of reliable statistics for projection is not the only reason for arriving at a probable figure. Much of the increase can be in equal measure, attributed to the expected human influx into the city from other parts of the state. While this seems to be understandable, in fact, the assumption that core Chennai city is being burdened with further population from elsewhere seems to be questionable. Another report notes that the ratio of city population to the agglomerations which was 1:0.61 in 2001, has now seen a trend reversal with a 1:1.14 equation in 2006.[6] Parallel verification of this character change can also be supported by the fact that the cost of land in Chennai in recent years has increased manifold – revealing a mismatch in demand and availability levels. Much of this demand might not come from slum dwellers, but shows that Chennai, which is witnessing greater work-related migration, can accommodate new entrants only in agglomerates and not in the slums that are already populated to the brink. While the agglomerations increase in number of persons per square kilometre and also in number

[3] See Section 3(i)(a), Tamil Nadu Slum Areas (Improvement & Clearance) Act, 1971, for a similar definition.

[4] The Tamil Nadu Slum Clearance Board (TNSCB) predicts that Chennai has a more strained slum population percentage to total city population, vis-à-vis other cities in Tamil Nadu, which is around 20% of their populations.

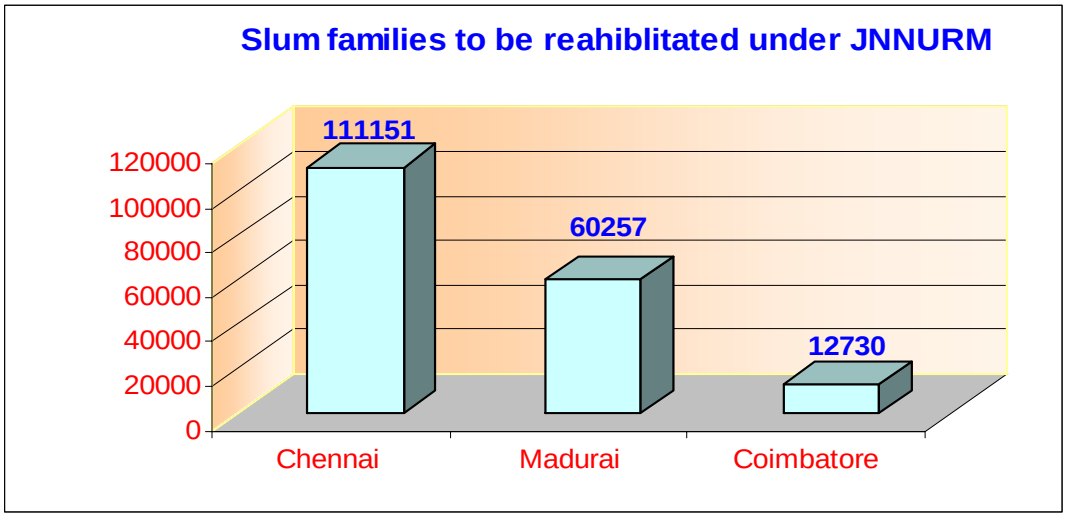
[5] This figure is a projection by bringing down the total population estimate for Chennai, pegged at 43,52,932 by Wikipedia for 2006. The plausibility of the correctness is also verified in the backdrop of the Chennai Metropolitan Development Authority (CMDA) figure of 49,50,000 for 2011. However, the CMDA pitches the 2001 population itself at 43.43 lacs. Thus, by any given standards, the current slum population estimate of 1.11 million is by all means, understated.

[6] *Appraisal Report on Development Plan for Chennai Metropolitan Area under the Jawaharlal Nehru National Urban Renewal Commission* from the Administrative Staff College of India (ASCI), Hyderabad, May 2006.

themselves, this issue vis-à-vis fringe slums in Chennai Corporation limits needs systematic analysis.[7]

This tagging of slum population at some figure is indispensable to see the extent to which the analysis and conclusions arrived hereinafter will affect the number of people. Let us take the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) for a brief analysis here. It is one of the single largest projects that have been devoted to the whole of Tamil Nadu, identifying metros where slum rehabilitation demands are acute and need attention on a serious footing. Chennai is one of three cities, besides Madurai and Comibatore that have been identified for the implementation of this Mission. The following table shows the number of families to be rehabilitated under the scheme"

TABLE: 1



Source: TNSCB

Chennai has been allocated a total Rs 1,856.23 crore under the project. In addition to this, over Rs 180 crore of the Rs 250 crore sanctioned by the XII Finance Commission will be utilized for building new tenements in Chennai slums alone.[8] This is the state of affairs as the TNSCB claims. The number of families to be catered to is 1,11,151 and the available funds, under the JNNURM and the XII Finance Commission allocation will cross Rs 2,000 crore. But is the planning made having in mind a reasonable estimate of the population? One is urged to say no. The problem lies in fixing a realistic population figure. Chennai's population, for the TNSCB is

[7] Maiti & Agarwal (2005).
[8] The other project, which is in fact on a larger scale than the JNNURM is the Integrated Housing & Slum Development Program (IHSDP) which covers all the other cities and urban agglomerates in Tamil Nadu.

stuck at 7.48 lac persons even as of 2001, when the census showed a figure 2.5 lacs higher, at over a million people.

The purpose of this effort that I have made here is to find an agreeable population and demographic pattern to show that invisible burdens exist even on current planning levels that will have to have in mind a higher coverage spectrum when they come up for implementation.

The following sections will deal with average figures in slums. As the SS Jain Findings shows,[9] individual slum situations are themselves, in terms of health and education, quite wavering, with respondents coming out with different answers. This shows that most or all of governmental facilities extended have only been partially successful, with a few accommodated while others have been left out.

Part I – Issues Affecting Slum Health

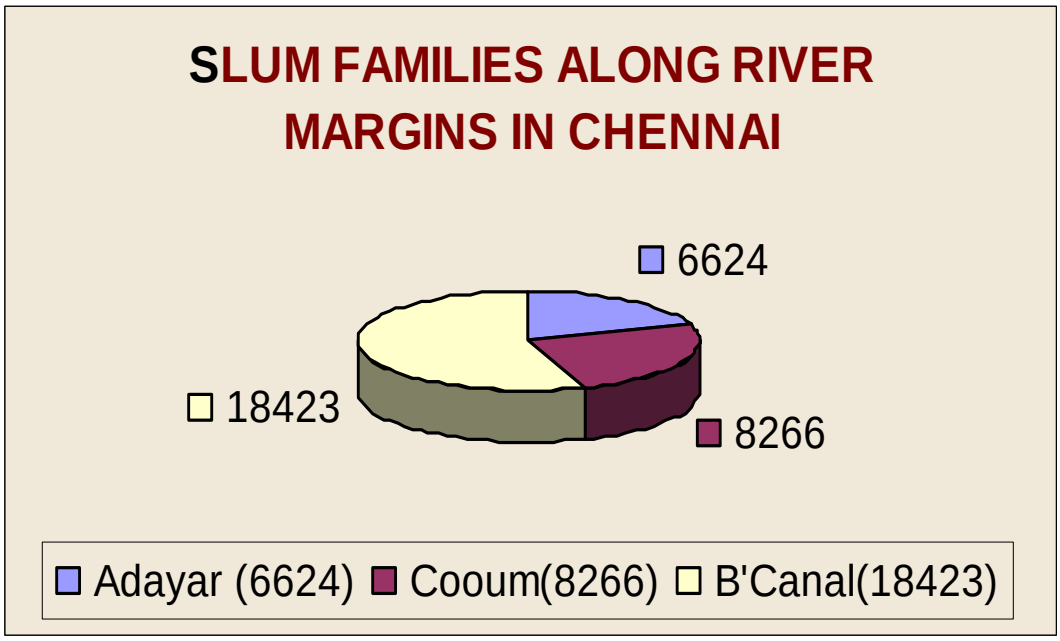
Housing being a key factor to the overall physical well-being of slum dwellers, I see the nature of houses as predominantly influencing other factors that affect health. According to the 2001 census, around 65% of the houses alone in slums are pucca houses while semi-permanent and temporary dwellings take an equal share of 17% each.[10] While this, as already stated is only an average. The reality in certain slums fluctuates from the mean that they require independent recognition. A few cases in instance might help supporting this conclusion. The one on Thiruvalluvar Salai, M K Ramasamy Nagar, has around 65% semi-permanent houses with the rest 35% being shared by the extremes – kucha and pucca houses. Worse, the one on Kamarajar Salai and the Ghose Mohideen Pet slum are all kutcha houses. Elsewhere, the distribution is even between the three types of houses, as is the case with the Ponniamman Koil Street slum.[11] Thus, systemic averages might not help to cater to particular slums, since the standard deviation is high, and the mean value might not represent a working model for the objective analysis of a given slum.

[9] In association with CCS. Hereinafter "SS Jain Findings".
[10] Chandramouli, C (2003).
[11] With reference to the relatively high average of 65% permanent houses, it needs to be noted that only a few slums lie at the two extremes of having a great majority of pucca or kutcha houses, and in most instances, the levels are moderated by the existence of either kind of houses and importantly, the predominance of semi-pucca houses. An example of a glaring difference can be seen with the Coovum river slum on the one hand and the Santhome High Road slum on the other. Especially, the state of the Cooum slum is pathetic, with all houses, whether kutcha or pucca suffering the fate of the river breaching its banks when water levels ebb, thus forcing much of the population out to the streets. For a vivid account of the situation, see, Flower, F Merlin (2005).

While considering the housing structure of slums, there is another concomitant issue of the general settings of certain slums in Chennai. Chennai being a city of canals and rivers, with almost all of them carrying stale water and sewage, a significant portion of the slum population of the city dwelling along the banks of these rivers and canals, requires special attention from the health point of view. Squatter figures along waterways in Chennai have been studied by the TNSCB and the Public Works Department (PWD) in a joint survey. As the statistics then showed, there were 33,313 families on the three riversides in Chennai. The internal breakup goes like this: Buckingham Canal, 18,423 families, Cooum 8,266 families and Adyar 6,624.[12] Presently, the number of families could still be the same, since these slums are almost fully occupied, and I place reliance on the theory that agglomerates are those areas that are seeing migration of *families* to Chennai and not the core slum areas themselves. Even then, importantly, the population in these riversides would have definitely gone up. That should be at more or less the rate in which general population rise has been. Depending on the number of people in a family, the number of squatters on riversides could have, even by 2001, easily been more than 1,00,000.

[12] These statistics pertain to the year 2001.

FIGURE: 1



Source: PWD and TNSCB, © TNSCB

The existence of more than a tenth of the total slum population in Chennai on these banks means serious health issues. Apart from the fact that the environment around these rivers affects slums holistically, the PWD has identified 8,164 families, from all the three riversides as posing problems to desalination activities on the rivers. That explains how these families have encroached into the relatively dry areas of the rivers, and need immediate attention. From the health perspective, water borne diseases are highly prevalent among these families, and carriers like mosquitoes could bring more ones like malaria into the lives of any of these 1,00,000 plus dwellers on the riversides. The TNSCB claims that it is rehabilitating all the families alongside the rivers in phased manner.[13]

Public sanitation demands next priority. As of 2000, 65.7% of slums had sanitation facilities (both urinals and toilet seats inclusive) while the rest 34.3% were defecating in the open, causing health concerns.[14] Again, this mean might be too unrealistic for slums like Mullaikuppam and Dobikana where there are no public sanitation facilities at all. Other slums represent a fair mixture of private and public sanitary facilities which bring the total slum population to sanitary requirements ratio to 1:0.65. However, there seem to be improvements from the 2000 figure, with statistics showing that only 20% or more might be defecating today

[13] See Policy Note 2002-03, Demand Number 25, TNSCB.
[14] See, Chandramouli, *op.cit*.

in the open – something that would mean that around 80% of slum dwellers now have access to mainstream human waste disposal systems.[15] This seems to be a substantial improvement in this area, for in less than 6 years, 15% progress has been registered.

Availability of safe drinking water is equally dear when it comes to securing the health of slum dwellers.[16] While easiness in access to drinking water and the actual consumption of drinking water are themselves two different things, data on the latter is not readily available. Thus, study of consumption of safe water is sought to be made indirectly by accounting for the access that slum dwellers have to drinking water. These figures might help to explain the consumption of drinking water in a negative way: that is, it shows the extent to which the need for slum dwellers to go in search of alternate sources of water is ousted. Thus, the underlying assumption is that, while whether or not slum dwellers *consume* safe water, the more it can be shown that they have easier, cheaper and generous access to drinking water, proportionally the lesser that they are dependant on other sources, which might necessarily not be safe. 80% of the water resources of slum dwellers are conventional, i.e., from hand pumps, and tap water. *Inter se*, hand pumps are the most common source of drinking water to slum dwellers and are largely accessible within half a kilometre distance in most slums. However, the assumption that hand pump water is safe is itself risky to sustain. Contamination of water, effluent mixing, ground water becoming saltier, and sewage seeping, are all but issues of proximate relevance to the quality of drinking water. Slum dwellers are more vulnerable to the dangers that lie here because of the fact that many households have improper cooking facilities, leading to direct consumption without boiling.

But the picture in slums as regards easy availability of water, as against non-slum areas is grim. I am in possession of the results of sample surveys in about four different slum zones, administered through questionnaires by the students of SS Jain College students, T Nagar, Chennai. The respondents were asked questions pertaining to their sources of drinking water. Some of them were personal conditions and attitudes while the rest pertained to public infrastructure and the extent to which they were usable. The answers have themselves been without uniformity. Elicitation of different responses including usage of public taps, hand-pumps, corporation water and tapping of other facilities, showed that generalizations were highly difficult. Chandramouli's numbers also go to support this proposition on a macro level to all Chennai slums:

[15] See *Appraisal Report on Development Plan for Chennai Metropolitan Area under the Jawaharlal Nehru National Urban Renewal Commission*, Administrative Staff College of India (ASCI) (2006), to this effect.
[16] Chandramouli, *op.cit*.

> "Only 26% of the [s]lum population had access to drinking water within their premises, while of the non-slum population was 71%. On the other hand, only 24% of the non-slum population had access to drinking water within 500m of their premises, while the proportion among the slum population was 55%. Moreover, 19% of the [s]lum population had to go more than 500m to access to drinking water, while of the proportion of non-slum population who had to go that far away was only 5%."[17]

I submit that paradigmatic variations in answers, even within a slum, reveal that not everything that is available to the public is being accessible and used by all. A lot of factors intervene, undoing any assumption that public facilities *ipso facto* cover all slum-dwellers. A medley of those conditions that Chandramouli presents indeed interferes with the uniform and equitable availability of drinking water in slums.

Garbage disposal has recently enjoyed the great attention of the Corporation. It is without doubt that it is an equally important health issue, inasmuch as sanitation or dwelling conditions, if not greater. There seems to be a holistic approach to garbage disposal and management by the Corporation – as a phenomena requiring attention not just from the slum perspective – but as something of interest to the entire city. Thus, being an exercise not in exclusivity to slums, it is possible to see how much of this drive for a proper method of disposal has been successful in slums areas. The contract for garbage disposal that the Corporation has with Onyx, a private company, is the mainstay modus of safe disposal of garbage. The endeavour has been a great success.[18] The Corporation had awarded a global tender for private conservancy in Chennai to Onyx which began on March 5, 2000, for a period of 7 years. The contract has currently been extended for a period of 6 more months. Onyx did a commendable job of clearing close to 1,100 tonnes of waste a day. The only drawback with this operation has been that there has been no source segregation of wastes, into organic and inorganic substances.[19] This is however to be corrected in the new global tender that the Corporation would make in late 2007.[20] The slums covered under the present Onyx services are in those 3 of the total 10 zones into which the Corporation has divided the city into, namely Triplicane (Zone 6), Kodambakkam (Zone 8) and Adyar (Zone 10).

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[17] *Op.cit.*, at pp. 85-86.
[18] See, Malliah, Santosh (2002).
[19] See, Sridhar, Lalitha (2002), for the other side to Onyx's conservancy of garbage "transfer" rather than garbage "disposal", with environmental concerns looming large at the dump yard in Perungudi.
[20] Subramanian, Karthik (2007).

But the work that Onyx has done with regard to slums in Chennai seems not to be satisfactory. Onyx's work appears to cater only to the posh main roads of these three zones and slums, it is argued, have been neglected. One case study of Oduma Nagar, a slum on the Besant Nagar beach shows that Onyx has failed in preventing improper disposal of garbage. [21] The reason primarily is that interior slums have not been accessible to Onyx personnel for lack of roads. What happens therefore is that bins are placed on the main roads outside the slums and people care least to walk all the way from the interiors to the main road to dispose garbage off. This issue needs thorough examination from the civic body's side. All slum roads cannot be broadened immediately. So, the Corporation will have to compel Onyx personnel to personally collect garbage from interior slums using appropriate means that may be available.

Part II – Perspectives to Education

The World Bank claims that 25% percent of government primary school teachers in India are absent from work.[22] How far this applies to Chennai can be contested, but nevertheless, the World Bank's conclusion signifies the deteriorating standards in government schools and the elsewhere increasing privatization of education that seems lucrative to government teachers. This phenomenon holds importance to slums since much of what 'education' to slum dwellers is, lies confined to corporation schools. Understandably, with low incomes and free education, corporation schools are the only sources of education.

This part seeks to analyze schooling in slums alone, for any further studies that slum dwellers take is sporadic and is highly dependant on a host of personal factors, like availability of funds, interest in studies, family situations, so on and so forth. Thus, to systematize a study on higher education results in an accounting not of general patterns in slums, but in chronicling individual situations, which might not serve the purpose of generalization. However, I do note that an overall improvement in the percentage of children who continue schooling after Standard VII-VIII[23] might mean that there is a commonality here that can be used to study the prospects of their completing schooling and joining diploma or graduate courses.

[21] Bhandari, Mridu, (2004).
[22] *The Week*, March 25, 2007, p. 6.
[23] See Flower, *op.cit.*, on Standard VII, most often being the maximum grade to which slum children study.

The SS Jain findings also echo the need for a particularized study in the area of education level ascertainment. There are in fact no respondents who have returned an answer "yes" to the question of graduates in their families. Mostly respondents have only been able to answer questions of number of literates or the number of family members who had schooling till Class VII or VIII. Thus, for the purpose of this study, the assumption of inability to draw general conclusions on the higher education front in slums only seems to be right.

Schooling success in slums has been seen as being reflected in the number of literates. This is so, for, the percentage of children attending schools does not necessarily mean they become literates *ipso facto*, given the high dropout rates. Thus, literacy in India seeks not to look at the number of school-goers, but as those above 15 years of age who can read and write,[24] regardless of how long they attended school. Against a national average of more than just 65% (2001 census), slums in Chennai posed a more competitive figure of an average of 80.09%.[25] To ascertain the current position, I use the experience that the years 1981-2001 have offered us in seeing growth rates in literacy. [26] I will deduct a minimal percentage of 0.65%[27] to represent contemporaneous population growth and will add another one percent as an "acceleration trend input" that will account for the growing awareness on education, resulting in a higher number of people becoming literate. The average Indian literacy rate has grown twice in 2001 from what it was in 1981. Thus, every year, there has been a 5% increase. Applying the same to the years 2001-06, there could be a 25% proportional increase from the 2001 figures. Thus, the current position might be: 80.09% + 12.02% + 1% - 0.65%, totalling to 92.46%.

As of 2001, there were 354 Corporation schools with 4,422 teachers employed therein. Today, the Corporation runs 360 schools: 27 Higher Secondary Schools, 36 High Schools, 1 Urdu High School, 1 Telugu High School, 124 Middle Schools (Tamil, Telugu & Urdu), 141 Primary schools and 30 Kinder Garden schools with an overall enrolment of 1,42,387 Students and 4,062 Teachers.[28] The teacher-student ratio is decent at a maximum of 1:40. This is in perfect tune with the national average ratio of 1:40.2 students in 2002-03.[29] The teacher-student ratio in

[24] World Factbook. This is the quantitative threshold fixed by the UNESCO to ascertain literacy levels in all countries.
[25] Chandramouli, *op.cit*.
[26] See Wikipedia, http://en.wikipedia.org/wiki/Literacy_in_India for a pictorial representation of the growth in literacy rates in the last two decades.
[27] This is figure is arrived at by using the same logic used *supra*. Note that this is quite less when compared to the national population growth rate pegged at around 1.6%.
[28] Chennai Corporation website.
[29] OECD/UNESCO WEI figure for India. The study covers only public schools and thus might be very reliable for our purposes.

India seems not to fluctuate greatly, and was very close to this very figure at 1:40.2 in 1995. At times, the national ratio is bettered in certain classes which might be able to show a 1:35 in teacher-student ratio.

A great majority of the students in Corporation schools hail from slums. This is as much as 95% of the total intake of Corporation schools.[30] Since barriers to education do not exist in the form of fees, cost of books, materials and transportation, corporation schools are best suited. "Chennai has a history of well-run corporation schools," claims (then) Deputy Commissioner of Corporation, for Education, Parks, & Playfields, D P Yadav.[31] His averments only seem to be true. Recently, the Chennai Corporation has overhauled the entire education system in primary schools by introducing 'playway' methods of imparting. The move has been a resounding success, with the government replicating the same everywhere.[32] Again, qualitative improvements have taken place in schools with the Corporation itself computerizing various schools and also in association with Intel, under the Technology Aided Learning (TAL) program. By 2000, all schools were completely computerized and no school remained without computers, claims a study.[33] Though roadblocks like high student-system ratio exist, attempts are being made to overcome these. An empirical study in fact showed that student test performances had bettered after the administration of the program, when compared to previous performances.[34]

As evidence of the overall betterment of schools is the fact that Chennai Corporation schools register decent pass percentages in Standard X and XII exams. These figures are just short of the state average of about 75%. With lack of socio-economic and educational support, these achievements of slum students are praiseworthy. Further, the Corporation is encouraging toppers with honours and cash awards.

These trends show not just the growing literacy rates in Chennai, but also noteworthy strides being made in actually educating slum children by strengthening the educational system from the competitions of child labour and poverty.

Part III – Conclusions from Consolidation

[30] *Education in India*.
[31] See, Padmanabhan, Geeta (2001).
[32] See Kannan, Ramya (2005).
[33] *Education in India*.
[34] *Ibid*.

This study reveals – despite not addressing a few issues – the mathematics of slum life in Chennai. But however, I challenge these statistics from the perspective that much of the seeming development has not gone on to change the lives of many in slums. The paper began on the very same note by making the distinction between 'growth' and 'development'. How this philosophical perception of mine could contest the decent statistics arrived at above, especially in education, should be a tough task in substantiation. However, as the paper notes in the beginning, even in the good statistics on education, literacy, in currently defined terms, is only a pointer yardstick and does not show the way to a knowledge society. Numbers would plummet if one were to venture finding out the number of graduates in slums, and much less, the number of those who have passed out from school. The problem essentially with proceeding on the "literacy rate" premise is that we are just looking at the number of people who can read and write. As already emphasized, this criterion can alone be fixed on a macro level for a purposeful examination. I recognize this not as posing an inherent limitation to my research, but as the only way that seems to bring a dependable figure into perspective.

Articulation of health problems in slums as worrisome is easier, than it could be with education. The slum figures themselves do not seem to present a happy picture. Disparities are huge and cannot be reconciled. Slums continue to reel under acute poverty with no substantial improvements in real income of dwellers. From the governmental standpoint, increase or decrease in real income of the individual is a long-term policy concern, to be corrected by macroeconomic planned ventures. These can neither act immediately to bring in discernible changes, nor is it in fact possible to do so. Again, the constant rise in population (as put forth above) is posing fundamental problems of locating them and endeavours at guaranteeing higher standards of living face perplexities. While much of governmental work caters to the upkeep of slums in general, it is important that development be overall, resulting in a substantial rise in the standard of living of individuals. Health care and education seem to be non-economic issues (except for medical treatment perhaps), but are so mentally associated with the daily life of slum dwellers that fundamental economic instability and impoverishment tend to have a bearing on the general attitude of slums and the collective picture that they portray to the rest of the world. This paper will conclude on the note that no amount of external assistance can compensate for the true mantra of development – development from within.

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